

33 ~~1~~ --SUMMARY OF THE INVENTION--;

Page 3, delete lines 25 and 26.

Page 7, between lines 30 and 31, insert the following heading:

34 --BRIEF DESCRIPTION OF THE DRAWINGS--.

Page 8, between lines 20 and 21, insert the following heading:

35 --DESCRIPTION OF THE PREFERRED EMBODIMENTS--.

36 IN THE CLAIMS:

~~Amend claim 1 as follows:~~

--1. (amended) An apparatus for exercise and/or rehabilitation of neck extensors by flexion and extension movements, said apparatus comprising:

an equipment frame (1), a seat (2) provided with a back rest (3), and holding means (4) for holding a person's body substantially immobile in position relative to the back rest;

a link rod (5) pivoted by its first end (6) on the equipment frame via a first joint (7) permitting a turning motion about a swing axis (8) perpendicular to a vertical middle plane of the seat;

a head rest (9) functionally connected to the link rod (5) so that the link rod participates in turning the head rest during an exercise movement while the person's head is leaning against the head rest;

a resistance means (10) for generating a force opposing the exercise movement;

adjusting elements (11) for adjustment of a position of the seat in relation to the equipment frame (1);

the head rest (9) being substantially fitted to receive an upper part of the person's neck; and

36 a multi-joint angular linkage mechanism (12), of which the link rod (5) constitutes a part, said multi-joint angular linkage mechanism (12) being connected to the head rest (9) so as to cause it to move during an exercise movement along a curved path that substantially coincides with a natural path of the person's neck during flexion and extension movements of the person's neck without producing any relative motion between the head rest (9) and a point of contact between the person's neck and the head rest (9).--

Amend claim 2 as follows:

--2. (twice amended) The apparatus as defined in claim 1, wherein movement of the head rest (9) follows a path of varying radius.--

Amend claim 3 as follows:

--3. (twice amended) An apparatus for exercise and/or rehabilitation of neck extensors by flexion and extension movements, said apparatus comprising:

an equipment frame (1), a seat (2) provided with a back rest (3), and holding means (4) for holding a person's body substantially immobile in position relative to the back rest;

a link rod (5) pivoted by its first end (6) on the equipment frame via a first joint (7) permitting a turning motion about a swing axis (8) perpendicular to a vertical middle plane of the seat;

BC a head rest (9) functionally connected to the link rod (5) so that the link rod participates in turning the head rest during an exercise movement while the person's head is leaning against the head rest;

a resistance means (10) for generating a force opposing the exercise movement;

adjusting elements (11) for adjustment of a position of the seat in relation to the equipment frame (1);

the head rest (9) being substantially fitted to receive an upper part of the person's neck; and

a multi-joint angular linkage mechanism (12), of which the link rod (5) constitutes a part, said multi-joint angular linkage mechanism (12) being connected to the head rest (9) so as to cause it to move during an exercise movement along a curved path that substantially coincides with a natural path of the person's neck during flexion and extension movements of the person's neck without producing any relative motion between the

head rest (9) and a point of contact between the person's neck and the head rest (9)

B4 wherein the multi-joint angular linkage mechanism (12) is functionally a five-joint planar mechanism, wherein the apparatus further comprises a control gear (13) for controlling motion of the multi-joint angular linkage mechanism, wherein the control gear (13) is rotatable about a swing axis (14) immovable with respect to the equipment frame (1), and wherein the swing axis (14) is disposed at a distance from the first joint (7) but in its vicinity.--

Amend claim 4 as follows:

--4. (twice amended) The apparatus as defined in claim 3, wherein the apparatus further comprises an auxiliary link rod (15), whose first end is pivotally mounted on the equipment frame (1) via a second joint (17) disposed at a distance from the first joint (7) but in its vicinity; and a head rest support (18) to which the head rest (9) is attached, a second end (19) of the auxiliary link rod (15) being pivoted on said head rest support via a third joint (20);

wherein the control gear (13) comprises a first frame component (21), which is rotatably mounted on the equipment frame (1) and provided with a first guide (22) disposed at a distance from a center of rotation of the first frame component (21), and a second frame component (23), which is provided with a second guide (24), forming a guide pair with the first guide, permitting

movement of the second frame component in a direction determined by the first and second guides in relation to the first frame component;

wherein the head rest support (18) is pivoted on the second frame component (23) via a fourth joint (25) disposed at a distance from the third joint (20);

wherein a second end (26) of the link rod (5) is pivoted on the second frame component (23) via a fifth joint (27) disposed at a distance from the third joint and the fourth joint.--

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Amend claim 5 as follows:

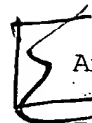

--5. (amended) The apparatus as defined in claim 4, wherein the link rod (5) comprises second adjusting elements (28) to allow adjustment of a distance between the first joint (7) and the fifth joint (27).--

Amend claim 6 as follows:



--6. (twice amended) The apparatus as defined in claim 4, wherein the auxiliary link rod (15) comprises third adjusting elements (29) to allow adjustment of a distance between the second joint (17) and the third joint (20).--


Amend claim 7 as follows:



--7. (twice amended) The apparatus as defined in claim 1, wherein the resistance means (10) opposes a turning motion of the link rod (5).--

 Amend claim 8 as follows: 


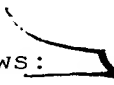
--8. (twice amended) The apparatus as defined in claim 4, further comprising a turning arbor (30) rotatably mounted with bearings on the equipment frame (1), and wherein the first frame component (21) is attached to the turning arbor (30) and the resistance means (10) is connected to the turning arbor (30) to generate a torque opposing the rotation of the turning arbor.--

 Amend claim 9 as follows: 

 --9. (amended) The apparatus as defined in claim 8, wherein the resistance means (10) comprises a counterweight (31) with plural individual weight elements (32), which can be combined so as to create a predetermined load.--

 Amend claim 10 as follows: 

--10. (amended) The apparatus as defined in claim 8, wherein the resistance means (10) comprises an eccentric gear (33) connected to the turning arbor (30) and an eccentric surface (34), a flexible elongated draw element (35) connected to the counterweight (31) and, a load opposing the exercise movement with a force that varies in a predetermined manner as a function of the rotational angle of the turning arbor.--

 Amend claim 11 as follows: 

--11. (twice amended) The apparatus as defined in claim 4, wherein the first frame component (21) comprises a balancing

counterweight (36) for balancing the structural assembly rotating about the swing axis (14).--

36 E Amend claim 12 as follows: 3

--12. (amended) The apparatus as defined in claim 11, wherein the first frame component (21) comprises fourth adjusting elements (37) to allow adjustment of the distance of the balancing counterweight (36) from the swing axis (14).--

Add the following new claims:

--13. (new) A neck exercise/rehabilitation apparatus comprising:

a frame;

137 a head rest movably connected to said frame and arranged and adapted to contact a neck of a person to receive neck exercise/rehabilitation;

a control device that rotates about an axis that is fixed relative to said frame, said control device having an arcuate slot therein that is spaced from said axis; and

a control arm pivotally linked to said movable head rest and to a joint that moves in said arcuate slot, said control arm moving said movable head rest in a path with a varying radius during rotation of said control device.

--14. (new) The apparatus of claim 13, further comprising a component to which said movable head rest is pivotally attached and a guide in which said component moves